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ABSTRACT

In this lecture, one of a series given annually at the University of Illinois at Chicago (UIC), the chancellor of the University of Maryland System said that a revolution is underway in American higher education. This revolution is tied to major transformations in society at large to which higher education must respond. The most pressing symptom of the revolution is the unprecedented financial stress among colleges and universities which will not change with an improved economy due to fundamental structural difficulties in the economy and in its public-sector component. Other changes and challenges facing higher education are the steady change in the demographic, socioeconomic, and political character of the American people; the conversion to a knowledge-based economy; and the consequences of the convergence of computer and telecommunication technologies in new information technologies. Education has become too important to be left to educators. University of Maryland responses to these conditions include the following: (1) enhancement of undergraduate education; (2) development and institutionalization of permanent performance enhancement mechanisms; (3) making quality preeminent; (4) exploration of the application of Total Quality Management; and (5) application of modern information technology to academic and administrative functions. Also included are the texts of the opening "welcome" given by UIC president Stanley O. Ikenberry and the introductory remarks of UIC's chancellor, James J. Stukel, and of questions and discussion that followed the lecture. (JB)

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(R)EVOLUTION IN AMERICAN HIGHER EDUCATION

by Donald N. Langenberg

Chancellor, University of Maryland System

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The David Dodds Henry Lectures in Higher Education are endowed by gifts to the University of Illinois Foundation in recognition of Dr. Henry's contributions to the administration of higher education, including his career as president of the University of Illinois from 1955 until 1971. The lectures are intended to focus upon the study of the organization, structure, or administration of higher education, as well as its practice. Selection of persons to present the lectures is the responsibility of the chancellors of the two campuses of the University. Presentation of the lectures is alternated between Chicago and Urbana-Champaign.

(R) EVOLUTION IN AMERICAN
HIGHER EDUCATION



DAVID DODDS HENRY
President, University of Illinois
1955-71

(R) EVOLUTION IN AMERICAN
HIGHER EDUCATION

by Donald N. Langenberg
Chancellor, University of Maryland System

Fourteenth David Dodds Henry Lecture
University of Illinois at Chicago

December 4, 1992

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W E L C O M E

It is my pleasure to welcome you. As I reflect on our speaker today, two strands of thought come to mind. The first is informed by what a joy it is to have the Langenbergs back. I recall that ten years ago, Judy and I were courting Pat and Don Langenberg at a pleasant little restaurant in Philadelphia. It was a delightful evening, and the beginning of a very strong friendship.

The second thought reminds us that this year we are celebrating the tenth anniversary of the consolidation of the University's two Chicago campuses. It is particularly appropriate that Don Langenberg, as UIC's first chancellor, should be invited back on the occasion of this tenth anniversary celebration and the David Dodds Henry Lectureship.

For those of you who are students of history and observers of the evolution of the University of Illinois at Chicago, you know that David Dodds Henry, along with two or three other very significant persons, including the mayor of Chicago, was largely responsible for the development of the Chicago campus.

David Henry came to the University in 1955 from Wayne State University and did so with a charge from the trustees to make operational plans that had been developed for a major presence of the University in Chicago. Those plans did not unfold quickly or easily, but it was David Henry who guided this major act of creation through the turbulence. Brick by brick, block by block, the construction of what was then known as the Chicago Circle Campus laid the foundation for what we now know as UIC.

We celebrate today the memory and accomplishments of David Dodds Henry, and we celebrate also the accomplishments of Don and Pat Langenberg and the return of the Langenbergs to this tenth anniversary

celebration of the consolidation. The coincidence of timing seems to have been a stroke of genius by our planners.

Don Langenberg came to this campus as its first chancellor and brought it immediate credibility and national visibility in a way we had never enjoyed before. Don came here as a recognized leader in higher education and as a person of respected accomplishment in the scientific and academic communities of our country.

That same national leadership was characteristic of David Dodds Henry. David Dodds Henry served as the president of the American Council on Education, he chaired the Executive Committee of the National Association of State Universities and Land Grant Colleges (NASULGC), and served as well as the president of the Association of American Universities. He was active in bringing into being what we now know as PBS, the public television broadcasting system in this country. He served also on the Carnegie Commission for Higher Education, led by Clark Kerr, which produced what was then and is now the most active and influential series on higher education ever produced. The studies issued by the commission easily fill a bookshelf, and each in its own way had a profound impact.

So the similarities of the two careers—David Henry and Don Langenberg—are apparent. Don enjoyed a distinguished academic career at Penn, followed by service at the National Science Foundation before coming to the University of Illinois at Chicago. He now leads the University of Maryland System, continuing a distinguished career of academic and public service.

It is not my purpose, Don, to introduce you, although my comments sound like an introduction. It is by way of offering a very warm and genuine welcome to Pat and to you and to say how happy we are to have you back. I speak on behalf of all of your friends who are gathered here

today in saying we look forward to your remarks. I am also confident David Henry regrets very much being unable to be here today. If he were here, I am sure it would be with great pride and anticipation that he would await your remarks.

Again, to all, but especially to the Langenbergs, we welcome you.

Stanley O. Ikenberry
President
University of Illinois

INTRODUCTION

Good morning. As President Ikenberry has indicated, we have a distinguished guest with us today who is special because he is one of us. We tend to forget that he was a Distinguished Professor of Physics at the University of Pennsylvania, as well as an innovative research administrator. At Penn, he was the director of the University Materials Research Laboratory and the vice provost for research. He had a major impact on the research directions of that campus. He was called upon, as President Ikenberry noted, to be the deputy director of the National Science Foundation at a time when there was a major debate about the role of universities in the nation's research agenda. Our guest is also a national leader. He was the president of the American Association for the Advancement of Science and the chair of NASULGC and is now the past chair of NASULGC.

Our speaker also was the first chancellor of this institution, and for that we owe him a great deal of gratitude. He launched us on a path that I think will lead to UIC becoming the premiere urban research public institution in the country. Currently, he is the chancellor of the University of Maryland System. Another important guest with us today is his wife, Pat. She is currently heavily engaged in research projects in the College of Medicine at the University of Maryland. Because she is so talented, I was delighted to learn that Pat is continuing to pursue her professional career. Pat is a truly wonderful person.

At this time I would like all of you to give our distinguished guest speaker, Donald Langenberg, a UIC welcome.

James J. Stukel
Chancellor
University of Illinois at Chicago

(R)EVOLUTION IN AMERICAN HIGHER EDUCATION

by Donald N. Langenberg

Chancellor, University of Maryland System

President Ikenberry, Chancellor Stukel, friends and colleagues, I count it a singular honor to be here with you this morning to honor one of our nation's greatest academic leaders, David Dodds Henry. Dr. Henry's foresight, courage, and wisdom are manifest in very many aspects of American higher education today, but nowhere more so than here in Chicago at this very special institution, the University of Illinois at Chicago. By presiding over the birth of one of UIC's parents, the University of Illinois at Chicago Circle, Dr. Henry initiated the development of a splendid exemplar of a new breed of American university. All of you here today have reason to be proud of your contributions to the continuing progress of the great institution Dr. Henry set on course in 1965.

It is also a very special pleasure for me to rejoin, if only briefly, so many good friends and colleagues and to experience once again the vibrancy of an institution I was privileged to serve during a formative period in its history. Let me say what you surely already know: although UIC is facing some difficult challenges, as are most of our nation's universities, it is dealing with them as well as any and better than many, and it remains on the path to distinction its founders set for it. My congratulations to you all!

My purpose today is to persuade you that there is a revolution under way in American higher education. Perhaps I should say "another revolution," for there have been others before. They seem to occur once or twice each century. They seem to accompany major transformations in our society. That's not surprising, because universities in our country are perhaps more closely tied to society as a whole than is the case in many other countries. Because revolutions are relatively infrequent, few of us have experienced one. Those who have tend to think that their revolution created circumstances destined to continue without significant further change. Those who have not tend to believe that the circumstances in which they have grown up are the natural order of things, again unlikely to change. Consequently, most of us are justifiably skeptical about proclamations of revolution. The first word of my title today recognizes that fact. I've fudged it a bit so that those of you who prefer to think in terms of evolution rather than revolution may do so.

I concede that change in academe does not occur overnight. The revolution I see happening has no landmark event like the issuance of a Declaration of Independence or the collapse of the Berlin Wall. It is unfolding on a time scale of years, not days. Nevertheless, I submit that it is unfolding about us, and at an accelerating pace, whether we choose to call it revolution or evolution. Further, I believe that it behooves us to recognize and acknowledge what is happening, for if we do not, we shall be doomed to *chase*, not *choose*; the futures of our institutions and those they serve.

What are the symptoms of the unfolding revolution? Perhaps the most pressing and obvious symptom is the unprecedented financial stress currently being experienced by many institutions. Last year the states of our nation collectively appropriated fewer dollars to support their universities than they did the year before. This was the first absolute decline in public

support for higher education in at least a third of a century. The fourteen institutions of my own University of Maryland System have lost nearly twenty percent of their state support in the last two years. Other institutions in other states have suffered worse.

Our public universities responded by cutting expenditures where they could (not, for the most part, where they should), and by raising tuitions. The State University of New York, for example, has doubled its tuition in two years. Expenditure cuts have forced reductions in course availability and support services to faculty and students and have seriously impeded efforts to maintain and upgrade physical facilities. These necessary short-term actions have planted the seeds of serious long-term problems in maintaining the quality of our universities' learning environments and in providing access to our students.

Nor is financial stress confined to public universities. We see increasingly numerous reports of budget deficits in our most distinguished private institutions. One has announced an unfunded need for maintenance and construction of capital facilities estimated in excess of one billion dollars. And there is little help in prospect from further increases in tuition revenues in private institutions, where years of double-digit increases have pushed tuition levels to what are wisely seen as the limits of public acceptability.

Times are tough! We all know that. But, surely, when our national economy rebounds out of the current recession, higher education can expect to return to the steady growth in funding to which it is accustomed. I very much doubt it! Why? There are several reasons. First, there are fundamental structural difficulties in our economy and in its public-sector component. For several decades we have watched the disappearance of high-salary manufacturing jobs and their replacement with low-salary service jobs, with

consequent negative effects on tax revenues. The current recession has brought a new kind of job erosion, the probably permanent disappearance of many high-salary, white-collar, middle-management jobs. Meanwhile, popular resistance to tax increases has become powerful and pervasive, this despite the fact that the United States allocates a smaller portion of its gross national product to tax-supported government programs than most developed nations do.

Much is made of the potential for reduction in defense spending made possible by recent dramatic changes in the global configuration of possible military threats, the so-called peace dividend. Whatever the reality of the peace dividend may ultimately turn out to be, it will be far outweighed by unfavorable trends in other elements of our federal and state budgets. The health care industry now absorbs more than twice the share of our gross national product that defense spending does, and that share is increasing as health care costs continue to escalate at a rate well above inflation. A substantial portion of the nation's health care costs are borne by federal and state budgets as a consequence of mandated entitlement programs like Medicaid. The general escalation of health care costs coupled with increases in the number of eligible program participants due to the recession have led to an essentially uncontrollable ballooning of health care-related costs in state budgets.

In addition, most states are under strong pressure to increase spending for correctional programs in response to what appears to be one of our nation's leading growth industries, crime.

All this adds up to a triple whammy for our states: tax revenues are down, and more or less uncontrollable expenditures for health care and crime control are up. The result is a viselike squeeze on other categories of state expenditure, those commonly labeled by the euphemism "discretion-

ary expenditures." Unfortunately—one might even say tragically—education in general and higher education in particular fall in this discretionary category. We are being steadily pushed away from the table by entitlements and mandated expenditures. Small wonder that, in many states, higher education's share of state expenditures is declining, and that at a time when many states are experiencing serious erosion of their ability to fund anything.

Many of our institutions, both public and private, derive substantial parts of their revenues from federal sources in the form of grants and contracts for research and development and federal student financial aid. These important revenue sources too are under severe pressure. Interest payments on our burgeoning national debt now rank next after entitlement programs and defense as a major component of the federal budget. There, too, the federal programs upon which we depend so heavily count as "discretionary," and hence are very much at risk.

What is apparent from this rather gloomy picture is that higher education's current budget difficulties are *not* solely due to a recessionary economy, and thus are not likely to disappear as soon as the national economy improves. Happy days are not just around the corner. There are major structural problems in both our sources and allocations of public funds that can only be addressed by some combination of increased taxes and reductions in spending for entitlement programs and debt service. It is hard not to be skeptical about our ability to muster the political will and courage to address these issues squarely and effectively. Even if we can (and I believe we must), it will be quite awhile before the effects are visible in the budgets of our colleges and universities.

Last year, a presidential colleague remarked at a national gathering of higher education leaders that those present at a similar gathering in the

year 2000 might look back on 1991 as the best year of the nineties for American higher education. In light of the way 1991 really was for many of us, that's a pretty dismal prediction. I hope my colleague will turn out to have been unnecessarily pessimistic, but I certainly wouldn't bet my life on it.

What I have just described is not higher education's only current challenge. It may not even be our most serious challenge. There are other winds blowing in the groves of academe that portend change for us, *big* change. Some of those winds resemble passing storms that, while they may be violent, come and go. Others are more persistent. One that reminds me of the ever-present wind of the Great Plains on which I grew up is the slow but steady change in the demographic, socioeconomic, and political character of the American people.

This change has many dimensions. It is really a fascinating stew of change, a stew that is a subtle blend of ingredients and flavors. I find it difficult to discern or predict their collective effect, but it is easy to believe that their long-term consequences for higher education will be profound.

Some of the ingredients are quite evident. If present trends continue, sometime in the middle of the next century the United States will become a nation whose population has no majority ethnic or racial group. Whatever will be the culture of mid-twenty-first-century America, its parent cultures will be those of the world, not just those of northern Europe. We are currently educating the people who will create that culture. The effects of this demographic change are already apparent in the vigorous debates on our campuses about curricular multiculturalism and the value to be attributed to the work of "dead white males." As a white male destined to be dead by the time this fascinating process proceeds to completion, I feel considerable regret that I won't see how it turns out.

Another demographic and socioeconomic trend currently in progress is a consequence of the evolution of our economy from one based on exploitation of natural resources and human muscle power to a knowledge-based economy. An important second factor here is that significant changes in the state of the knowledge foundations of most economically important skills now occur on time scales that are short compared with human career lengths. A consequence of these two factors working together is that an increasing fraction of our work force *must* either be retrained quasi-continuously or inevitably become obsolescent and eventually incompetent. I know no better illustration of that than the story about the turn-of-the-century medical dean who told his graduating class, "Gentlemen, as you embark on your careers as practitioners of our great art, I must tell you that half of what we have taught you is wrong. Unfortunately, we don't know which half." What has been true of medicine for some time is now true for many professions and trades.

What this implies for us in higher education is that we must adapt our programs for the young to this new reality and also develop our capabilities for meeting the needs of the not-so-young. We can no longer expect in four years fully to prepare a twenty-two-year-old for a satisfying and rewarding lifelong career. The best we can hope to do is to provide our twenty-two-year-olds with two things—the skills necessary if they are to compete effectively at the entry level in their chosen careers, and the intellectual foundations they need in order to assume responsibility for erecting on those foundations their own lifelong educations. The latter is, in my opinion, by far the more important of the two and constitutes the most powerful argument I know for the necessity of ensuring that no one walks across a commencement stage to grasp a baccalaureate diploma without having had a thorough, rigorous, and broad liberal education.

As I look inward to see what sustains me in my own daily endeavors, I am confronted by a sad reality: much of the physics I learned as a student—even sadder, much of the physics I myself created as a teacher and researcher—is either obsolete or irrelevant to what I do now. What remains, however, is of enduring value and use. It includes attitudes and habits of mind cultivated in the pursuit of that gloriously beautiful discipline, buttressed by a multiply connected network of ideas and values gleaned from the work of great professors, authors, composers, and artists who, in one way or another, have spoken to me from across the millennia to the present. What I have had I think essential for all our young students.

Our not-so-young students present us a challenge of a different order. There are many of them, and their number is growing, driven by the perishable nature of professional knowledge I mentioned before. Their growing numbers explain in part why our enrollments have continued to increase during a period in which the number of new high school graduates decreased. They help to explain why the average age of our undergraduates is in the upper twenties and why close to half of all college and university students are part-time students. They are place-bound by virtue of family- and job-related constraints and therefore are often unable to come to us. We must go to them and provide what they want on their terms, not ours. They are mature adults with substantial experience in the ways of the world. They want to learn what they need to know as rapidly and efficiently as possible and have little time for interesting irrelevancies. They respond differently and require different treatment than "traditional" students do. Heaven help the ivory-tower professor who presumes to teach such students what they have already learned the hard way in the office, on the factory floor, or in the streets.

None of this will be news to this audience, for UIC's student body includes more than a few such students. Most of our colleges and universities have begun to respond to the needs of nontraditional students, but few have gone nearly far enough. It requires more than persuading your professor of computer science to shift his course from 10:00 a.m. to 5:00 p.m. It requires different teaching styles, different student services, and different facilities. Above all, it requires different attitudes on the part of faculty and administrators. In short, it requires specializing all aspects of the educational experience to the needs of students who are very different from traditional students.

One of my own system's fourteen institutions is just so specialized. It is called the University of Maryland University College. It serves only part-time adults. Its head-count enrollment is the largest in the system, close to forty thousand. It has no campus in the traditional sense, no library, and no football team. It makes heavy use of information technology to deliver instruction to distant sites. Its students are spread around the globe from Thailand to Turkey, with fifteen thousand in Maryland and the rest at U.S. military installations abroad. Few people are so constrained by requirements of their jobs as are military personnel. University College is quite used to coping with the midterm transfer of a substantial portion of its enrollment to places like Saudi Arabia. It is not unusual for a University College student to have studied at a dozen different locations for ten years or more in the course of earning a degree. And it is not unusual for a University College graduate to have a distinguished career. During one recent term, *two* of the members of the Joint Chiefs of Staff were University College alumni. I would suggest to you that University College has characteristics that are likely to become more common as we all learn how to serve new kinds of students.

As we struggle to meet the demands of a changing student population with very limited resources, we are encountering other impediments, many of them of our own making. Public attitudes toward our institutions seem to be changing for the worse. We share with all other institutions of our society a general decline of public confidence in us. But beyond that we find ourselves buffeted by negative publicity focused on a variety of faults, some imagined, but all too many quite real. We are charged with failure to provide all our students a sound traditional education, and also with failure to abandon tradition in order to embrace some more politically correct new curricular order. We are accused of abandoning our students to inexperienced and inarticulate teaching assistants so that our real faculty can waste even more time exploring obscure nooks and crannies of the intellectual world. Others assert that our faculty do insufficient research, particularly in areas that will foster the economic development of our communities. We seem quite regularly to provide newsworthy examples of crime, bigotry, fiscal malfeasance and misfeasance, scientific fraud, arrogance, and athletic avarice.

To some extent all this is a consequence of our own success in demonstrating that we are in fact centrally important institutions of our society, not harmlessly irrelevant occupants of its periphery. Because it is widely recognized that what we do touches the lives of everyone, we have come under close and continuing scrutiny by the media, politicians, and people generally. It should not surprise anyone that under such circumstances our warts become obvious. It is disappointing, however, to see how often we succeed in making bad situations worse through lapses of elementary common sense and good judgment in our relations with our various publics.

The upshot of all this is that we can no longer rely on unquestioning public support based simply on the belief that education is good and

therefore that the institutions that educate are necessarily good. Education has become too important to be left to educators. In the words of Robert Zemsky, "We have come to the end of sanctuary." We must find ways to explain and justify what we do in terms acceptable to our clientele, not to ourselves. But it will not be sufficient simply to seek support for what we have always done. We must also conduct searching reexaminations of our methods and practices and undertake to change and reform them wherever necessary. And we must be prepared to do so in the full glare of public scrutiny and criticism. There is a revolution in progress. Reactionary resistance to change is not an acceptable response to that fact.

Now let me describe one further important element of the revolution we face. It may well be the most profound and far-reaching of all. I refer to the consequences of the convergence of computer and telecommunication technologies to form information technology. The importance of this for higher education comes from the fact that information is the essential raw material of our enterprise. Our primary functions all involve the creation and dissemination of knowledge, understanding, and insight based on information. The very structure and character of our institutions are intimately linked to the nature of our technology for handling and managing information. That technology is now changing and evolving at a breathtaking pace.

The last radical change in information technology occurred half a millennium ago with the invention (in the West) of printing with movable type. That invention made possible books and journals and led of necessity to the creation of an information support system centered on the institution we call the library. A university can be fairly described as a community of scholars, both faculty and students, gathered around a great library. The nature of the physical artifacts on which our information management

system has been based requires that that library incorporate massive physical facilities in which the artifacts can be stored and made accessible to scholars. It also requires a professional staff to manage and support the enterprise. We are accustomed to judging the quality of a library in terms of the number of volumes it houses. The quality of a university's library is in turn a commonly used indicator of the quality of the university itself.

Modern information technology is changing all that, and rapidly. The potential magnitude of this change has only recently become evident. In the early decades of the computer era we did the obvious. We computerized our card catalogs just as we computerized our financial accounting systems, and we began to add electronic storage to our libraries' portfolio of information storage devices. We did something similar in the early decades of the automotive era. We replaced the horse with an internal combustion engine and had something that looked and performed like a traditional carriage. We even called it a "horseless carriage" for a while. Then the course of the machine's evolution shifted from motorizing the carriage to developing the automobile, with current results that show little resemblance in either form or performance to the horse-drawn carriage.

We appear now to be in a similar transition in information technology. The advent of the personal computer just ten years ago and the growth of computer networks has led to the rapid delocalization of computer-based information systems. Where once the great mainframes held sway in their computer centers, as the books did in their main library, scholars using notebook computers with network connections roam the copper and glass-fiber highways of the globe at the speed of light. Interactive and compressed video technologies provide direct audio and visual contacts among scholars in widely separated offices and classrooms.

These things and their foreseeable technological successors are not just aids to the conduct of traditional academic activities. They promise major changes in the very character and structure of our universities. In the information age analog of the library (something I have dubbed an "infory"), number of volumes ceases to be a useful surrogate for information access, and the forward progress of an institution might best be measured by the rate of *decrease* of its paper-based materials. When the great bulk of a university's information assets are electronically stored at network nodes distributed around the globe, what will a university do with its main library building? If today's library housed in a grand edifice at the heart of the campus becomes an infory distributed like a living nerve system over the surface of the earth, then what reason is there for the university itself to be physically localized in one place? The heyday of the great campus computer center with its big mainframes is clearly over. Might not the same eventually be true of the great campus itself? I wonder if a geographically distributed electronic university could have a football team?

Let me hasten to say that I do not expect the wonders of a bright fall afternoon among the ivy-covered halls of Old Siwash to fade into oblivion very soon. Nevertheless, it seems evident to me that the convergence of the needs of an increasingly delocalized student population with the emergence of an intrinsically delocalized academic information infrastructure will inevitably change the form and nature of many of our institutions in profound ways. Those who would survive this academic revolution would be well advised to keep close track of the information revolution that is driving it.

Those then are the main elements of the higher education revolution I see in progress. Some obvious questions follow. Where will it take us? What should we be doing about it? Let me take my answer to the first

question from Yogi Berra, who said, "It is difficult to make predictions, especially about the future."

For the second question, let me draw on my own experience in Maryland for a few examples of things I think we should be doing. The framework for the University of Maryland System's strategic response to our ongoing budget crisis and to the revolution of which it is a part was set forth in a report I presented to our Board of Regents earlier this year. The report, titled "Achieving the Vision in Hard Times," presented ten propositions. Let me focus on five of them that seem particularly germane here.

The first of these propositions underscores the centrality of undergraduate education to the mission of the University of Maryland System and its degree-granting institutions. It calls upon the regents to establish undergraduate education as a priority for enhancement. However important graduate and professional education, research, and technology transfer may be as functions of American higher education, the stature and reputation of most of our institutions depend very strongly on the quality of the learning environment they create for their undergraduate students. It is in this arena, in particular, that we must win back the hearts and minds of the American public if we are to restore our "most favored institution" status.

I am well aware of the irony of calling for *enhancement* in a plan precipitated by budget constraints. However, enhancement need not mean new funds. Enhancement can be achieved by redeploying existing resources and by adopting new strategies. I am also well aware that calls for improvement of undergraduate education recur with about the same frequency as the seven-year locust—and produce a remarkably similar noise. Nevertheless, we must regularly reexamine and reassert our commitment to teaching. Otherwise, what we have always believed to be the *essence* of higher education will become an *afterthought*.

The second proposition I want to mention states the need to "develop and institutionalize permanent performance enhancement mechanisms, with the dual goals of increasing productivity and responsiveness while reducing bureaucracy and its attendant costs."

The rapid growth in recent years of administrative functions and costs relative to instructional and research functions and costs in American universities is well documented. In considering how to make our administrative support functions more effective and less costly, we should not underestimate the difficulty, or the importance, of the task. The difficulty stems in part from the lack of precision with which we and others use the term *administration*. Does cutting administrative costs mean cutting the budgets for libraries, student support services, and laboratory technicians, as well as the areas traditionally associated with administration? Does it mean cutting the amount of time *faculty* spend on "administrative activities," which the Carnegie Foundation estimates at one-third of their total hours worked?

Despite such difficulties of definition, we have demonstrably reduced administrative costs throughout our system by ten percent during the past two years. Next week I will take to the regents the next chapter of "Achieving the Vision in Hard Times," with recommendations for actions that should shave several more percentage points from our administrative costs.

Under the proposition calling for increased productivity, I have asked the fourteen institutions of our system to develop more sharply focused mission statements and priorities. In particular, I have asked them to review their missions relative to those of their sister institutions to ensure and enhance both distinctiveness and complementarity. The goal here is to sharpen the distinctions among our institutions by reducing redundancies

among them, while maintaining the ability of the system as a whole to meet the needs of Maryland's citizens. Next week's chapter of "Achieving the Vision" will include recommendations for eliminating a substantial number of academic program redundancies across the system.

The two most radical propositions in my report are seemingly the most straightforward and innocuous. One states that among all of our goals, quality is preeminent. The other states that we will explore the application of Total Quality Management—TQM—to our institutions.

Why are these the most radical? Has the University of Maryland System lacked a commitment to quality? Of course not. But like most institutions of higher education in this country, we have not found a way to operationalize and focus that commitment. Unless we establish quality as the *sine qua non* of our enterprise, and unless we adopt the requisite management practices, then American higher education will lose its competitive advantage as surely and as quickly as this nation's home electronics industry did.

One of the most controversial implications of making quality preeminent is that in times of budget constraints other goals may be compromised. This is especially true for public higher education, which has a historical and a moral obligation to provide broad access. I would assert, however, that access to mediocrity is of little value. Our current budget crisis may well compel us to make the difficult choice of providing better programs to fewer people. (Please understand, limiting access does *not* mean limiting diversity among the student population. On the contrary, such diversity is one characteristic of the quality we are striving to achieve.)

This is neither the time nor the place to discuss the application of Total Quality Management to higher education. I would simply point out that I do not underestimate the difficulties. I also do not underestimate the

benefits, and so I am an unabashed enthusiast of what some will brush aside as a fad, others as anathema to academe, and still others as impractical in dealing with the learning process. Experiments under way in universities across the country suggest great promise. I intend to proceed with TQM on the basis of that promise and its proven success in the corporate sector.

The last proposition I want briefly to mention states that the University of Maryland System will "foster the optimal application of modern information technology in both the academic and administrative functions." I have just discussed the basic rationale for this proposition. I bring this to your attention again here because I believe it is the mechanism by which we will accomplish many of the other propositions in the presence of rigorous resource constraints.

Those are just half of the propositions I have put forward for changing the way we do business in the University of Maryland System. They illustrate but by no means exhaust the kinds of things we in higher education must be about if we are successfully to weather the revolution in which we find ourselves. Our watchword must be *change*, for change there will be! It may be change forced upon us. It *should* be change deliberately and carefully designed by us. The difficulties we will face are great. Let me turn to the words of others to underscore that fact.

First, a mentor and friend, John Hobstetter, describing what he perceives about our faculties: "We know that most of them believe that their current condition is intolerable, dismay abounds, and that the only thing worse would be any change."

Next, from a valuable guide in the thickets of academic politics, Machiavelli: "[T]here is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the

old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries, who have the laws in their favor; and partly from the incredulity of mankind, who do not truly believe in anything new until they have had actual experience of it."

Why persist in the face of such discouraging wisdom? Because the prize is nothing less than the preservation and enhancement of the greatest family of institutions the world has yet known, our American colleges and universities. So let me end with the brighter advice of a poet, Goethe:

"Whatever you can do, or dream you can do, begin it. Boldness has genius, power and magic in it."

I urge you all to begin.

Thank you.

QUESTIONS AND DISCUSSION

DONALD MARSHALL, Professor of English, UIC: We have time now for some discussion. It is customary to put that in the form of inviting questions, but I'd like to be a little more generous and allow the possibility for dialogue, for statements, for conversation. I think that Chancellor Langenberg will not be shy about seizing the opportunity to respond to statements. You don't need to artificially put a question mark at the end of it.

DAVID BARDACK, Professor of Biological Sciences, UIC: Would you comment on possible changes in the goals and direction of the National Science Foundation?

CHANCELLOR LANGENBERG: That's been a subject of considerable worry, as you know, in the scientific and engineering communities. As you know also, the National Science Board, the governing body of the foundation, has recently established a commission and has asked it to consider the future of the foundation and to provide recommendations upon which the National Science Board can build further substantive considerations of what might be done. The concern was triggered by statements of the present director of NSF that seemed to some to imply he felt the foundation ought to abandon its traditional support for investigator-initiated basic research in favor of what some would think of as glitzier research with obvious direct applications to making money in some industry. He has assured me, by the way—several times within the last several months—that that was not his intent, and I can say a few words about what I think his intent was.

But the net result was that the commission has reported to the board: I think its report should be seen as very reassuring. It says roughly two

things. One, the foundation should not abandon its traditional role as the primary supporter of basic research in most scientific disciplines other than the biomedical sciences. Two, it should continue to develop and to encourage linkages between our sources of basic knowledge within universities and elsewhere. Those who use it call it technology transfer.

I don't find the report very disturbing. However, let me also say that there is and continues to be real reason for concern, because it is very clear that there is a movement—nearly a missionary movement—that says we have to turn our investments in education and in research to good use, to making money, because if we don't do it, we are going to fail in international competition. Call it technology transfer or call it what you will, that pressure is coming from all sides, including many of our friends. One of them, Congressman George Brown, chairman of the House Science, Space and Technology Committee and one of the best friends that university research has ever had in Washington, is saying it. The junior senator from Maryland, Barbara Mikulski, has been saying it, and saying it with a certain amount of clout because she presides over NSF's budget. What they are saying is clearly consistent with some of the major emphases one can see beginning to evolve in the new (Clinton) administration. The question is not whether change will occur or whether we can forestall it; we can't, and frankly we shouldn't. The question is whether we can shape it in a way to save the best of the past and build on it better for the future.

CHEM NARAYANA, Professor and Head of the Department of Marketing, UIC:
What ways do you have of gaining consensus to translate your budgeting and restructuring proposals into action?

CHANCELLOR LANGENBERG: "Any way we can get it" is the best answer. First, let me describe some of what is going on, knowing there is some controversy.

"Achieving the Vision in Hard Times" was intended not to produce recommendations for actions and implementation. It was intended, rather, to try to arrive at a common framework of understanding, a set of principles, if you will, that we could all agree on. The old line about how the threat of hanging does wonderfully concentrate the mind applies here. We have been under threat of imminent disaster for two years now.

There was some urgency. We did not have time, we thought, for the usual protracted academic bottom-up planning process. What we did do, however, was to run through, in about one semester, a set of parallel but strongly interactive processes that involved a lot of different groups. We asked the presidents, who form a council across the system, to interact with their campuses in any way they thought appropriate and to produce what they thought ought to be our top priorities, what should be the guiding principles, what were the questions that needed to be answered. We have a systemwide faculty council, something equivalent to a senate, though it does not have legislative authority, and we asked it to participate. We had a similar student group. We put together an ad hoc committee that I will tell you, quite frankly, was selected very carefully to include some of the craziest faculty we could find, the ones who were willing to think anything without fear, who make full use of their tenure protection. We had a system administration staff to help put it all together, knowing from the outset that we were likely to get a document that could then be passed through all of the campus senates, through the presidents, and through the administration.

I made it clear that the report to the regents was going to be made as a personal report from the regents' chief of staff, which is my second title. I

made it clear that it would draw from everything that had gone on, but it would not be a collective document or a committee product. It would just simply be my report, and if the regents didn't like it, the person to complain about was me. A year ago at Christmas vacation, I took all of this material and sat down at a word processor and wrote it. I took it to the regents—with some trepidation, I must say. The response was, in fact, enthusiastic beyond all my expectations. The regents have, in effect, adopted the framework. What effect has that had?

We are beginning to see some of this big system reacting. There are some who simply say, "No, not for me, I'm not going to do it." It has not led to immediate action. It has led to a lot of creation of groundwork. For example, one of the propositions was to develop permanent performance evaluation mechanisms. We spent most of the year working with the academic vice presidents and with large numbers of faculty, in a highly consultative manner, trying to settle on a way of evaluating the effectiveness of academic programs. There was a commitment in that document to establishing that by the end of this academic year, and we are going to succeed. We then would apply the evaluation to all of our eight hundred or so programs around the system on a five-year cycle. We have not had an opportunity to do that. Since the urgency has increased, we took this evaluation system and applied it to about a quarter of our programs. We have a set of recommendations going to the board next week for actually cutting programs.

The next chapter is going to have some specific actions of that sort. Again, we have been through a process that is highly consultative. One of the results of that process is that it is simply not possible for representatives at whatever level of fourteen very different institutions to think about our clientele from the point of view of the system and to forget local institutional

interests, turf, and the like, and simply ask the question: How do we deliver what the citizens of Maryland need most effectively, where it needs to be delivered, without thought for who delivers it? What we have discovered is there are some things that people care about and agree on. We went through a computer-assisted decision management with all the presidents. We found out a number of things. They all, in fact, do agree that quality is preeminent. And the consensus is great. If you ask them to create lists of priorities, what's important, what's not, what are the principles on which we should select academic programs for reduction, for elimination, for consolidation, or whatever, then the range of consensus broadens out to cover the full range from "dead set against" to "absolutely in favor of." They just cannot do it. What is their response? Somebody has to do it.

Because of that, what we are in the process of doing is initiating the actions from the other end of the system, with the board. It is a governing board. If the board can, in fact, agree that certain things need to be done, specific things, like closing such and such a program at such and such an institution, and can come back to all of our institutions and say, "All right. We think this ought to be done. You tell us how to do it, or show cause why it should not be done. You've got until May 1," then we think it will work. The board does look at it from the system point of view, and our board is a very good board. I will say that every evidence is that they are prepared to move further and faster than the institutions are. We need to move pretty far pretty fast. Whether it will work out I don't know. I refer you to Machiavelli again.

DONALD CHAMBERS, Professor and Director, Center for Molecular Biology of Oral Diseases, UIC: I was intrigued by your comments on quality. This week the newly crowned president of Harvard, Neil Rudenstine, at a meeting at

the National Press Club was asked, essentially, to define what he classified as quality. Can you define what you meant by quality?

CHANCELLOR LANGENBERG: At this point in the game, I cannot give you a generic definition of quality that is, in fact, an operational definition and broadly applicable. I think that's partly due to my own deficiencies but partly due to the fact that we collectively have never fully confronted the question of how we determine, how we judge, the quality of our own product. I will back off even a little further and assert that we have not confronted very well the question of what our basic product is. You say, "But, of course, we do that. We produce graduates. We produce credit hours. We produce papers." I would assert that all of those things are measurable surrogates for something that is very difficult to measure, very difficult to judge. I would assert that we really have only one product, just one, and it is learning. Learning, in all of its aspects. It's learning by our students in their classrooms. It's learning by our faculty in their research laboratories and in the library. If that's the product and you ask how to define its quality, you clearly have a very difficult question. I doubt that there is anybody in this room who could give an answer that would be fully satisfactory to everybody else in the room.

It seems to me that is something we really need to address. It's a fascinating research topic in its own right. I think our friends in the social sciences could be very helpful in helping us understand how to measure quality, and I think we've got to do that not by looking at the producers of our services, but at the result of their production of those services. The place to look is not in our faculty. I am not high on trying to assess quality of teaching, because teaching is only a means to an end. I would much rather try to look at the quality of the learning that does or does not occur. Having

said that, I don't really know how to do that. I think we need to spend time, we need to look, obviously, at how our students are regarded in the markets into which we send them, and I think employer recruiting patterns and graduate performance are among the valuable indicators of quality.

One other remark, and then let's turn to Paul [Uselding]. I don't think there is anything particularly unique about the relationship between quality and institution. I know of no reason, for example, for arguing that one institution has higher quality than another, unless you really get down to specifics. Harvard, for example, may or may not be of higher quality than UIC, but if it is, it is in specific areas, not just generically. I think it is also the case that if learning really is the outcome, and if you take in a young eighteen-year-old genius to an institution like, say, Harvard, and he emerges a genius, there may or may not have been any learning along the way. If you take in a kid out of some ghetto somewhere and turn him into a practicing physician, there has obviously been a heck of a lot of learning along the way. That's what you really need to focus on.

PAUL USELDING, Dean, College of Business Administration, UIC: You started off by saying you didn't have a good definition. You finished with a very good one. I think it's just necessary to underscore that quality is not really an absolute concept. It is not well understood in our world. It is a relative concept as defined by your mission, and it is assessed in the marketplace that you choose to serve as the supplier. Therefore, the answer that you gave at the end—if we all regard, for example, some hypothetical university that is a linear combination of Harvard, MIT, and Cal Tech as the absolute standard of quality, then nobody would have quality except for those three. So I agree with your answer.

CHANCELLOR LANGENBERG: Let me make one other point, and that is what I said about distinctiveness and complementarity, which is an explicit goal of our system. We are deliberately trying to drive ten of our degree-granting institutions away from the College Park, comprehensive research, land-grant model. We are trying to make them more different from College Park than they are. They are already very different from College Park, rather than more like College Park, and really trying to get inculcated in the notion of being the very best in the country of their kind, but to have at least a half a dozen different kinds, and we may well wind up with eleven different kinds.

JOHN ROHSENOW, Associate Professor of Linguistics, UIC: About ten years ago, the book *Megatrends* predicted that with zero population growth and an aging work force, there would have to be a dramatic increase in immigration to take over the lower-level labor and service jobs in the U.S. Those predictions have already started to come true, and the *Workforce 2000* report on the needs of the changing work force after the year 2000, now only seven years away, states that, "The earnings of immigrants and their offspring will equal or exceed those of native-born Americans with similar characteristics." Given that Chicago is one of the primary points of entry for this immigration, and that these immigrants will be seeking education for both themselves and their children, would you comment on the implications for UIC in the area of teaching . . . [this new wave of immigrants].

CHANCELLOR LANGENBERG: Since UIC is far more likely than most institutions to confront the leading edge of that wave, I would comment that UIC had better get busy doing what it already, in fact, is doing, and that is figuring out how to respond to and react to that wave. I would quarrel a little bit

with the notion that we are going to have lots of immigrants in order to keep up our work force. I think the cause and effect is the wrong way around. We are getting lots of immigrants from lots of different places because, if you have any choice, this is *the* place in the world to live and work and raise your family. There must be close to five billion people in the world who know that. I don't know what fraction has the choice and can in fact vote with their feet, but that's the way a lot of people do vote.

Given that fact, our work force is going to be enormously enriched. But dealing with a highly heterogeneous population, a population that displays something close to the full range of heterogeneity in any set of characteristics you want to name as the entire human race, is not an easy thing to do. If you are educating only the children of the well-to-do families of the community whose population derives from a single culture, you've got a pretty easy task. If you have the task that UIC and many institutions like it have, you've got a very difficult task. But there is excitement, there is challenge, and in fact great reward in meeting that challenge.

UNIDENTIFIED: One of the things you were talking about earlier raises the question as to how people are going to perceive new electronic means of disseminating information as a supplement to traditional publishing, because in one sense genuine electronic publishing cannot support how we currently determine who gets credit for publications, and our whole system of tenure and other rewards is built upon that.

CHANCELLOR LANGENBERG: That's probably one of the bigger challenges we have. It is true that at least in the Western world one of the pillars of scholarship is the association of ideas with their creators and the provision of reward and recognition on that basis. We figured out how to do that

within the technology created by printing with movable type. The copyright system and the patent system are two examples of that, as are the informal systems that we all take for granted but that we work very hard to inculcate in our students.

Plagiarism is one of the cardinal sins of academe. We are all taught to attribute ideas. If you quote or even if you put in an important idea, tell us where the idea came from. If it's yours, fine. If it's not, refer to the article or the publication or the private communication or the letter from which it did come. We are all quite strict about that.

I don't know how we are going to deal with the equivalent in the electronic age. On the one hand, one of the marvelous things about electronic communication is its fungibility. You can publish electronically, and people can begin annotating, linking to other articles, and potentially modifying immediately. That's one of its great virtues. But we really need to find some way to acknowledge authorship. Do we give up the notion of connecting authorship and priority with the creation of new ideas? I don't think any of us are prepared to give that up. Some of us might do it for money, but in academe, where money is going to be in short supply, we've got to get our "jollies" somehow. We are simply, I think, going to have to find a way to deal with that. One suggestion I would make is that we ought to explore the extent to which it is possible to provide technically for the attachment of a tag to everything that goes on, a tag that cannot be removed without destroying the piece. Something like sending a kid on a plane trip with a tag around his or her neck that says, "I am Jimmy Brown. If lost, please connect me to my parents." And if you could find a way to do that, it would in large part help solve the problem.

But I think it is also a major intellectual problem to figure out both technically and legally. Legally is probably worse. The last I checked, for

example, the lawyers, the patent lawyers, had still not decided that an electronically maintained laboratory notebook was legally acceptable evidence in a patent suit. I don't know whether they have done that yet. They were still struggling with it two or three years ago.

CRAIG LAWLESS, UIC Student Trustee: At the University of Illinois, one of the components of assessing priority, quality, and productivity is demand. Being a student, I am particularly aware of the demand, predominantly from students, but also the other constituencies that demand knowledge from the University. I don't hear enough inside the University, in the context of quality, about demand—especially in times of limited resources. Could you give me your sense of whether demand is compatible with quality, or is it an adversarial link?

CHANCELLOR LANGENBERG: There are about three or four really good questions in there. I think, clearly, our most important clientele are our students. I would even go so far as to say that for a variety of reasons our most important students are our undergraduate students, and I think that is as true at Harvard and Stanford and Cal Tech as it is at UIC, the University of Maryland-College Park and Frostburg State University. I say that because that really is the central thing most people think of when they think of a university. We have a terrible time explaining ourselves and what we do: provision of knowledge to the scientific and scholarly community of the world and creation of the knowledge base for the development of commercial and socially useful inventions. A lot of people accept that, but a lot of people don't really sort of understand how we do that. But educating students, and in particular undergraduate students, is easy for everybody to understand, and I think students are probably *the* most important clientele.

The others are also important. I think all of our clientele, and there are very many of them, deserve the best that we can give them. None is so unimportant as to be deleted from the list of clientele that we must serve.

What role does demand play? Let me illustrate the difficulties with that. I am wrestling with that at the moment, with a particular case. We have within our system two law schools. They are the only two law schools, public or private, in the state of Maryland, not counting the half dozen or so that exist in that black hole called the District of Columbia. It's a black hole because it seems to accumulate lawyers at an incredible rate, partly from the outside and partly because it trains them. I am told, for example, that one in twelve residents in the District of Columbia is a lawyer. Do any of you have any sense of why we are having so much trouble with those people?

We have these two law schools, each with an entering class, a first-year class, of about five hundred fifty. We have about fifteen applications for each place at each of those two law schools. We have, in short, an enormous demand. Now, I would recognize that a lot of those are multiple applications and all of that, but nevertheless, to judge both by that and from the number of phone calls and letters we get annually from legislators and unhappy alumni about the rejection their son, daughter, cousin, or whoever got from one of the law schools, the demand is enormous. Is there a need? Well, it's curious, because I also have a very considerable file of communications, most of them from attorneys, saying we don't need any more lawyers.

DONALD MARSHALL: Who is going to be appointed Secretary of Education by President-elect Clinton, and what changes in education will a Clinton administration be likely to pursue?

CHANCELLOR LANGENBERG: Let me answer the first question first. I have no idea, but I have heard most of the rumors, I suspect, that most of you have. Joe Duffy, Donna Shalala, just a couple from the list. If we are talking about job creation and training of the work force, I don't think higher education is going to fare very well, because I think we are seen as essentially irrelevant to the part of a job that really needs to be done. I think, based on what I've read, that we are probably going to see a considerable amount of emphasis, concern, and attention paid to what might be called technical education. I don't know what technical education is. I think getting a Ph.D. in physics is a technical education. What most people mean is trying to create people who can go onto a shop floor or into an office and do something that requires technical skills and get the job done.

The most commonly described model, as people think about and describe what we really need, is the German technical school and apprenticeship system by which they train the best bakers, the best violin makers, the best gear machinists, and the best medical aides, I am told, in the world. We have nothing like it, and if we have a base on which to build something like that, it's the community colleges. It's not institutions like UIC. So I would guess that the community colleges are likely to get a good deal of attention. They already enroll, by the way, the majority of first-time college and university students in this country, a bare majority, but it is a majority. I don't think we, and institutions like this, are going to get much attention. I don't think we are seen as part of that scene, part of the important things that need to be done. It may be that we are, but we are going to have to get busy and prove it.

I do think, on the other hand, that we are also going to see the evolution of something of a much more active involvement of the federal government in industry and in promoting industry and helping industry.

I think we are probably going to see an industrial policy, whatever that is, and there I think is the major opportunity we have for universities relating to our role in helping create the people and the knowledge on which our technological industry is based. That's probably our main point of access.

DONALD MARSHALL: Thank you all for coming. Let's express our appreciation to our speaker one more time.

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